THERMOMETRICS
A COMMITMENT TO EXCELLENCE

Pressure & Temperature Combination Sensor



RoHS

Thermometrics Pressure & Temperature Combination Sensor provides both pressure and temperature measurements in one sensor assembly. For reliable and accurate measurements, the sensor utilizes NTC thermistor technology for temperature sensing alongside silicon-based Microelectromechanical Systems (MEMS) technology for absolute pressure sensing. This sensor assembly also features robust internal circuit protection and sealed integral connection system, which makes it ideal for automotive, heavy equipment, agricultural, electric vehicle, and generator set applications.

Applications

- Automotive:
  - Engine Fuel
  - Engine Oil
  - Engine Intake Manifold
- Electric Vehicle (EV) Battery Coolant
- Generator Set

Features

- Robust internal circuit protection
- Sealed integral connection system
- MEMS based pressure sensing
- NTC thermistor temperature sensing
- Mating port per ISO standard
- Other thread sizes available per request
- Additional R vs. T and pressure curves available per request

Part Number	Mating Port Size	Installation Torque	Absolute Pressure Sensing Range	Housing Material	Mating Connector (Tyco P/N)
GE-2098	M14x1.5	25Nm ± 5Nm	20 to 204 kPa (2.9 to 29.6 psi)	304 SS	776487-1
GE-2096	M14x1.5	25Nm ± 5Nm	50 to 550 kPa (7.3 to 79.8 psi)	3600 Brass	776487-3
GE-2099	M12x1.5	15Nm ± 5Nm	76 to 655 kPa (11.0 to 95.0 psi)	3600 Brass	776487-4

Amphenol

Advanced Sensors

Performance Specifications

Electrical Performance

Parameter	Min	Typical	Max	Unit
Supply (Vs)	4.5	5	5.5	V
Current Consumption		7	10	mA

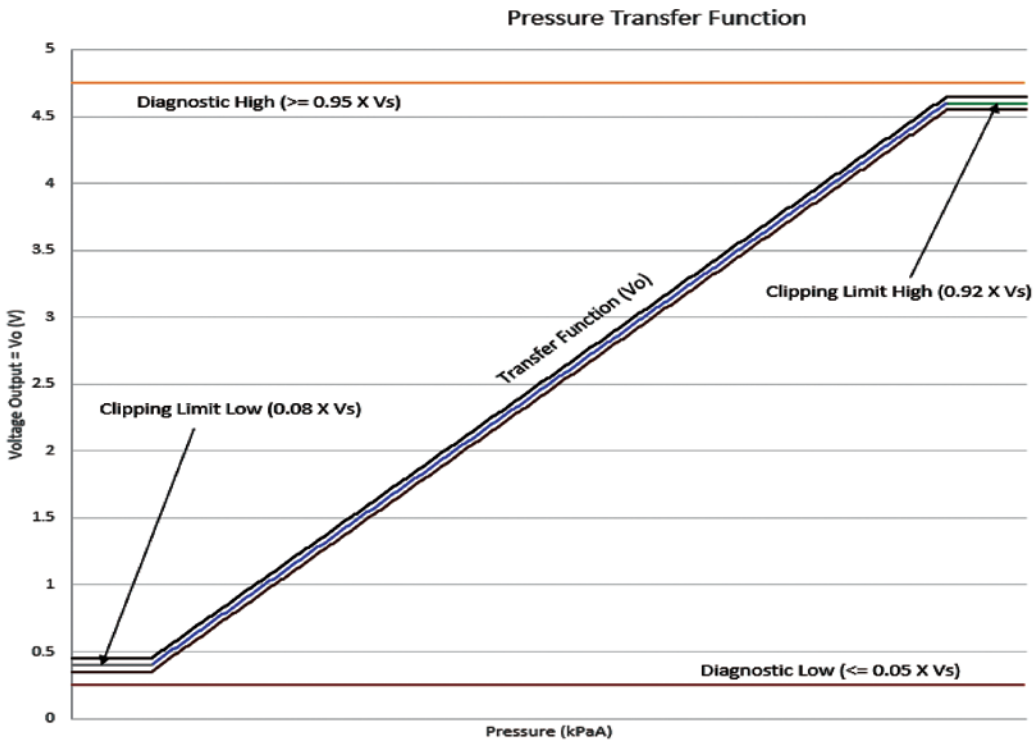
Pressure Performance

Parameter	Min	Typical	Max	Unit
Pressure Output (Ratio-metric to Supply)		Analog Output		V
Pressure Accuracy			±1	%
Operating Pressure Range[1]	0.2		6.55	Bar
Proof Pressure[2]			22.5	Bar
Burst Pressure[2]			50	Bar

1. Calibration range
2. Gauge Pressure

Part Number	Pressure Transfer Function	Pressure Range
GE-2098	*Vo = ((P x 0.0045726) – 0.011453) x Vs*	*20 < P < 203.7 kPaA*
GE-2096	*Vo = ((P x 0.00168) – 0.00040) x Vs*	*50 < P < 550 kPaA*
GE-2099	*Vo = ((P x 0.0014496) – 0.030304) x Vs*	*76.09 < P < 655.56 kPaA*

Note: Vo= Voltage Output (V), Vs = Supply Voltage (V), P = Pressure (kPaA)



Performance Specifications *(cont.)*

Temperature Performance

Parameter	Min	Typical	Max	Unit
Storage Temperature	-40		+150	°C
Operating Temperature[1]	-40		+150	°C
Temperature Output[2]	NTC, 3000Ω @ 25°C see table 1			Ω
Temperature Accuracy	See Table 1			°C
Temperature Time Response	< 24 in 6M/s air flow			Seconds

1. Refer to temperature zones in mechanical specification section.
2. Parallel 0.047 µF capacitor for Electromagnetic Interference (EMI) Suppression (see Figure 1).

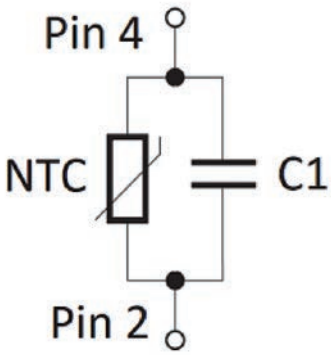


Figure 1: NTC Circuitry

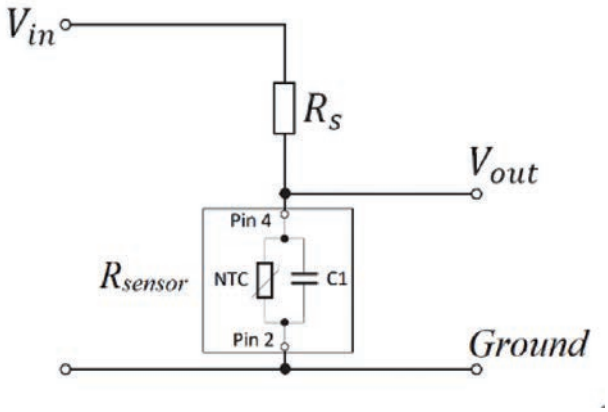


Figure 2: Typical NTC Application Circuit

Table 1: NTC thermistor - Resistance vs. Temperature			
Temp. (°C)	Resistance (Ω)	Resistance Tol. (±%)	Temp. Tol. (±°C)
-40	100950	3.0	0.45
-20	29121	2.6	0.45
-10	16599	2.4	0.44
0	9795	2.2	0.43
10	5970	2.1	0.44
25	3000	1.9	0.43
40	1598	1.7	0.42
50	1081	1.5	0.39
60	746.4	1.4	0.39
80	377.4	1.2	0.37
85	321.7	1.2	0.38
100	204.0	1.0	0.34
125	102.5	1.3	0.50
150	55.59	1.4	0.60

Performance Specifications *(cont.)*

Protection and Diagnostics

Parameter	
Overvoltage/ Reverse Voltage Protection	±40 VDC
Short Circuit Protection	Yes
Transient Voltage Suppression	Yes
Electrostatic Discharge (ESD) Protection	±8 kV contact, ±15 kV Air
Internal Failure Management System	• Application and firmware monitors • Programmable temperature thresholds • Sensor short and connection monitors • Programmable diagnostic levels • Sensors aging check

Mechanical Specifications

Weight
Stainless Steel: ~48.6g
Machined Brass: ~46g

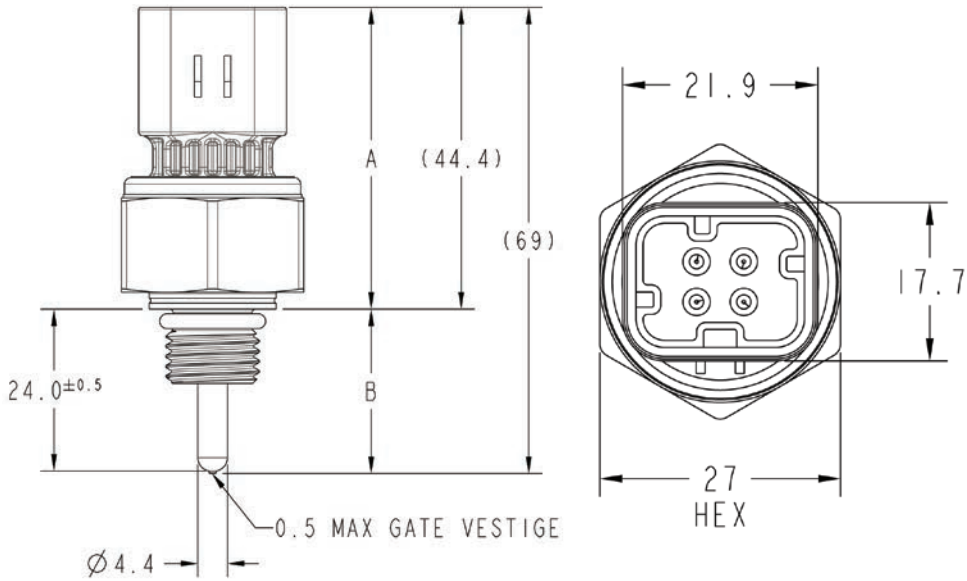
Mating Port Configuration
ISO-6149-1

Mating Port O-Ring Material
FKM 90 Durometer

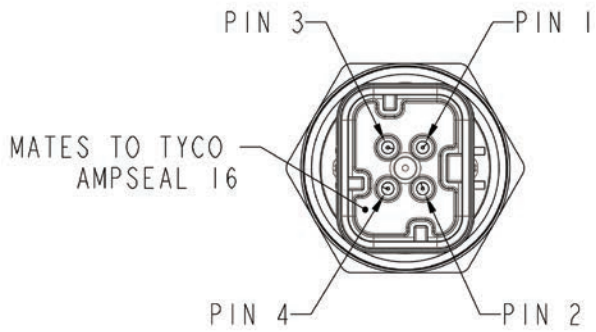
Mating Connector Series
Tyco AMPSEAL 16

Operating Temperature Zones
Zone A: -40 - 135°C
Zone B: -40 - 150°C

Mechanical Dimensions



Connector Pinout



Pin 1:	Supply Voltage
Pin 2:	Ground
Pin 3:	Pressure Output
Pin 4:	Temperature Output

Amphenol
Advanced Sensors

www.amphenol-sensors.com

© 2023 Amphenol Corporation. All Rights Reserved. Specifications are subject to change without notice.
Other company names and product names used in this document are the registered trademarks or trademarks of their respective owners.